RCMA

MONTHLY NEWSLETTER

MAY 1979

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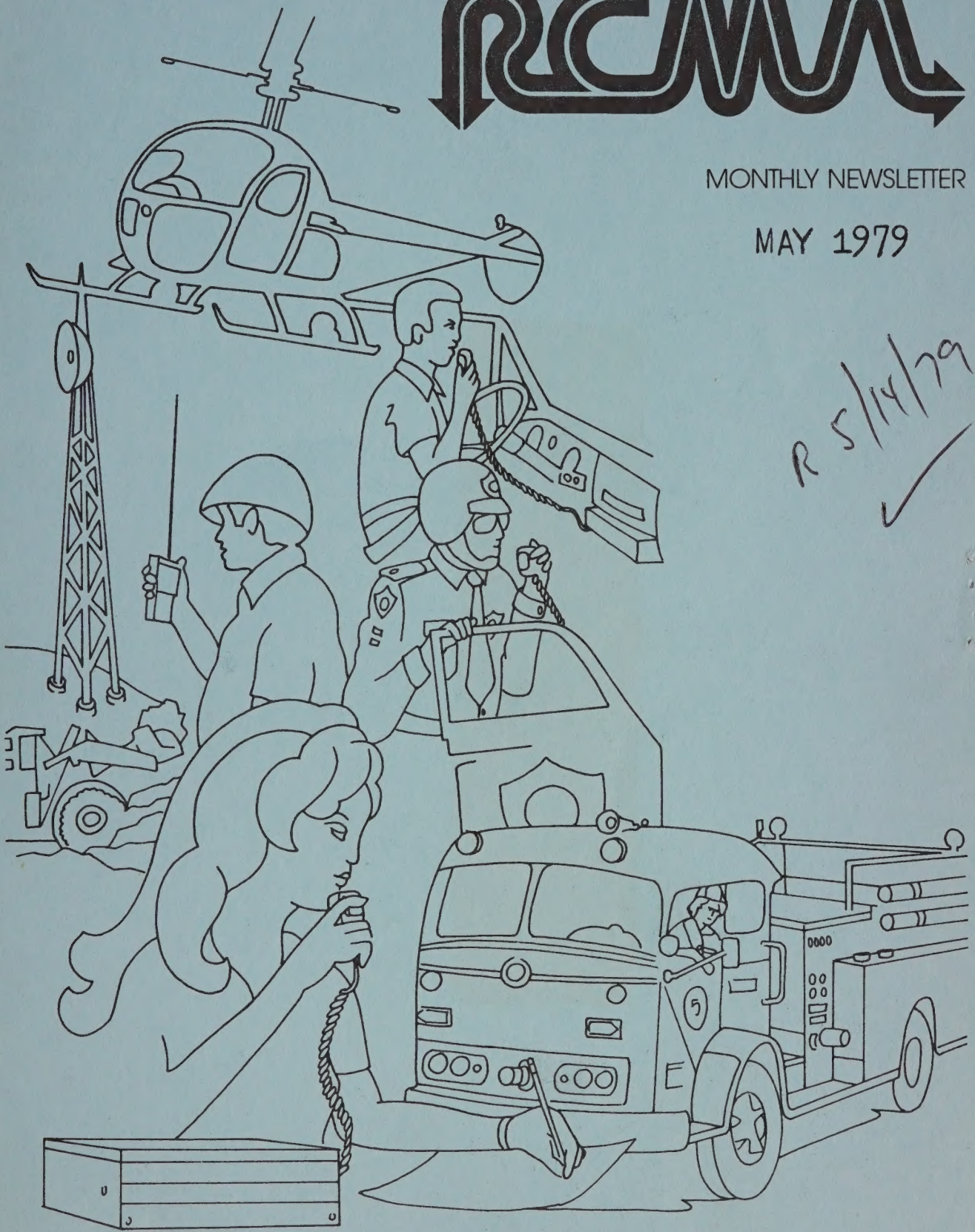

The Radio Communications Monitoring Association is a radio club for persons interested in listening to two-way communications above 30 MHz as a hobby. The RCMA was founded in May 1975 and is a Full Member of the Association of North American Radio Clubs (ANARC).

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FOR YOUR INFORMATION

1. All club business must be addressed to: RCMA, P.O. Box 4563, Anaheim, CA 92803. This includes matters that relate to renewals, changes of address, Newsletter delivery problems, Membership Directory, etc.
2. Input to the RCMA Newsletter must be mailed to the proper editors whose addresses are included in the column headings. If in doubt or if no particular column seems to be appropriate, send it to: RCMA, P.O. Box 4693, Riverside, CA 92514. Please do not include matters of club business.
3. RCMA Newsletter back issues (reprints) - For information and prices send a self-addressed, stamped envelope to: Bob Leef, 8261 Santa Anita, Corona, CA 91720.
4. To forward a letter to a specific RCMA member whose address you do not know, put your message to that person in a stamped envelope with your return address in the upper left corner. Put this and your instructions for remailing in another envelope and mail to: RCMA, P.O. Box 408, Earp, CA 92242.
5. It would be appreciated if you would include your RCMA membership number with all correspondence to the Newsletter editors or to Headquarters.
6. If you require a reply when writing to RCMA Headquarters or one of the editors you MUST include a self-addressed stamped envelope.
7. Please write only on one side of the paper.
8. Please do not combine in one letter items that should go to different addresses.
9. If you are inclined to type what you submit to the Newsletter, please use a 6-1/4 inch column width with 1-1/8 inch margins on each side and single space. Doing this may save an editor from having to retype the material. Please do not use "*script*" type.

The RCMA Newsletter is published monthly by the members of the RADIO COMMUNICATIONS MONITORING ASSOCIATION, P.O. Box 4563, Anaheim, CA 92803. Subscription rate/membership fee is $8.00 per year for US and Canadian residents; $18.00 for overseas residents. Information contained herein is primarily obtained from members and does not necessarily present the position or reflect the opinion of the RCMA as a whole. Reproduction of any material from this Newsletter (excluding direct photocopying) is authorized providing the source (RMCA) and the address are given.

MAY 1979 ISSUE 5 VOL V COPY NO. 41

C A L E N D A R

MAY 18 RCMA MEETING & TOUR

PLACE: Dept. of Transportation (Cal-Trans)
ADDRESS: 120 So. Spring Street, Los Angeles
DAY/TIME: Friday, 7:30 P.M.
PROGRAM: Jerry Duro, from Regency will introduce a new model and give a brief talk on Regency and related models.

Dick Murphy of Cal-Trans will give a brief intro and history of Cal-Trans, then present a slide program showing progress of Cal-Trans. To round out the eveing a tour of the operations center will be provided.

JUNE 3 RCMA SAN DIEGO MEETING

PLACE: Skip Sanders' Home
ADDRESS: 2129 Crownhill Rd., San Diego, CA
DAY/TIME: Sunday, 1:00 P.M.

JUNE 15 RCMA TOUR

PLACE: KABC T.V.
ADDRESS: 4151 Prospect, Los Angeles
DAY/TIME: Friday, 8:00 P.M.
PROGRAM: No formal meeting this month as we will be touring the news and operations facilities of KABC T.V.

Recap of the RCMA Orange County Meeting of April 20:

Gene Hughes (CA-LA-006), Editor of "Police Call", gave a summary of his recent trip with his wife to China and the Middle East. Gene demonstrated a new model of a G.E. Paramedic Biophone which he left on display during the break. He then discussed the present and future use of 800 MHz and 900 MHz and then answered questions on many items of interest.

Noel Robertson (CA-LA-083), the RCMA Secretary, reported that we had received about 150 inquiries for new membership in the club during the past month and that about 80% were from people living outside California.

The subject of advertising in the Newsletter was discussed and two members were appointed to draw up a set of guidelines. It was pointed out that the Board has not yet decided to accept any type of advertising.

PRESIDENT'S MESSAGE

SUBJECT: Resignation as President of the R.C.M.A. May 1, 1979

Dear Friends,

Because of a recent status change in my life, I will be unable to continue as the President of the Association. It is with deep sorrow and regret that I will not be able to provide the dynamic leadership and to implement several innovative ideas that I was working on. I would, however, like to announce that I have made special arrangements for our next two club meetings.

Sincerely,
Danny McLean
Danny McLean
R.C.M.A. President

THE editor's column

Iden Rogers, P.O. Box 4693, Riverside, CA 92514

RCMA DUES INCREASE

RCMA dues have been increased to $8.00 per year starting NOW! Everything else is going up and so must our dues.

Inside the back cover of the Newsletter is a list of monitor related publications. A new list will be prepared in a month or two. Please send in full details of any publications that are not listed that you feel are worth including. Please include price and ordering information.

If anyone who attends the Anaheim or San Diego RCMA meetings regularly would like to write-up in an informal manner a summary of each meeting's events for the Newsletter each month, it would be appreciated by many members who cannot attend. Interested persons please contact me.

On our Newsletter cover it says, "RCMA" in stylized letters that are difficult for many people to read, especially those who don't know what it says. Many letters come to the club referring to our publication as the "RCM". A non-radio friend of mine was at my house one day and saw a copy of our Newsletter and said, "RCM, hmmm, those are my initials." I believe that our Newsletter should clearly read "RCMA NEWSLETTER". If I hear no objections, I will change the lettering. I also would like the month to be printed in larger letters. I would welcome any comments regarding this subject.

Please read the front inside cover. It contains information that you should know. Also, you will note that the club officers' titles have been changed. Your elected officers are the same people only the titles have been changed.

RCMA membership is steadily growing and so is input to the Newsletter. Also, with the multiple editor system each editor will be inclined to prepare a higher percentage of received material for the Newsletter than previously was the case. The introduction of special interest editors will invite still more input. This means Newsletter expansion. The $2.00 dues increase was intended primarily to allow for Newsletter expansion. If the Newsletter rapidly outgrows the $2.00 increase,which I believe could easily happen in short order, then we are faced with a decision. Should we keep the Newsletter a constant size and keep it at $8.00 per year by rejecting some of the submitted material or should we further increase the dues to allow for continued expansion? PLEASE LET ME KNOW YOUR FEELINGS AS SOON AS YOU CAN. (Reply to Riverside P.O. Box.)

Regarding RCMA Newsletter bulk rate postage vs. first class postage: A few members complain that the bulk rate results in slow or erratic delivery of the Newsletter. I am assured by those who mail the Newsletter that bulk rate has been surprisingly efficient in getting the Newsletter to all parts of the country at four week intervals and that there are only one or two complaints per month about delivery problems out of over 600 copies mailed. Some members are quite willing to pay the added cost of first class postage which would amount to about $2.00 more per year per person. Due to bookkeeping problems, as explained to me, the whole club would have to go to first class or none at all. As I see it, if a very high percentage of the membership receives their Newsletters at four week intervals this is all that is really required. Any comments?

THE Editor's Column (continued)

From LARRY (OH-002): "I am really enjoying my membership in the RCMA, and look forward to receiving the Newsletter each month, and am still awaiting my copy of the Membership Directory."

(Editor's Note: The RCMA Membership Directory is being prepared by one person. It is a horrible task. I used to do it when the club only had a couple hundred members or less. Please be patient, it will eventually come a few pages at a time in the Newsletter. Some of us feel that it should be discontinued since it is such a time consuming task. It may be discontinued in the future. Take a look at the new "CONTACT" column, it may serve your needs just as well.)

From GENE SIMPSON, Pleasanton, CA 94566: "I believe that Federal Frequencies should not be listed in the Newsletter, including all discussions about them. Also my belief is that H F utility frequencies should not be published since other ANARC clubs such as SPEEDX have excellent, well supported H F utility columns."

(Editor's Note: It appears that H F frequencies will be excluded from the RCMA Newsletter but we are making one major departure from our original position --- We now have a Low Band, 30-50 MHz, Skip column.)

From ROBERT (WI-003): "I would like to say that ads should be taken, someday RCMA may be a magazine with full time paid workers. As of right now there are a lot of magazines for HAM and CB but not Public Service Freaks. We have about 600 members in RCMA and about 20 times that amount are closet monitors. These people and we members are potential buyers of a Scanner magazine. A lot of companies who make scanners, antennas, pre-amps, and other related items need a place to advertise. 'Popular Science' magazine, for example, has product reviews like cars and get in no hot water. As long as product evaluation shows the bad along with the good, I'm sure no scanner manufacturer will complain, in fact, maybe they'll correct the bad side. I've said my piece now on advertising in the Newsletter, keep up the good work."

(Editor's Note: Your point about other radio hobbyists having magazines available to them on the newsstand is valid but RCMA does not in the foreseeable future intend to go into a profit motivated magazine operation. If some enterprising individuals care to start a magazine for monitor listeners, this is fine. RCMA, as a radio club, can co-exist nicely with such a magazine.)

From LUTHER BRANCH (MO-001): "I would like to put in my two cents for what it is worth, about advertising in our monthly Newsletter. I spend several dollars a month writing to the members for information concerning scanners, antennas, pre-amps, attenuators, etc. etc. I can assure you I am for getting all the latest dope on scanner products. (With advertising) we can keep the dues down....."

(Editor's Note: It appears that for part of our membership sufficient product information is lacking from our Newsletter. Members who live in metropolitan areas generally have ready access to scanners, accessories and information. It really hadn't occurred to me before but some members simply are not as fortunate as us big city folk.

Manufacturers' ads in the RCMA Newsletter could serve to bring some product information to members but there are numerous products by many manufacturers and there is no way that we could carry enough different ads to cover the available products. Including manufacturers' advertisements would be a start but only a start. Accepting ads from retail scanner dealers representing many manufacturers perhaps would be advantageous. In any case, money gained from advertising would help permit the Newsletter to expand, which I believe it should. Personally, I do not favor accepting advertisements.

Another thought would be to establish a "Monitor Product" column with its own editor devoted entirely to describing an assortment of available

products for monitor listeners. This, at present, will be one of the goals of the "Technical Topics" column but only as space permits.

Members should be aware that several publications carry advertisements about scanners and accessories, such as CB magazines, "Popular Electronics", "Communications Handbook", "Communications World" and perhaps a few others. Electronics mail order company catalogs often carry listings of monitor related products. Each member who is seeking product information should put out an effort to locate these publications and study their advertisements.)

From DAVID BECK (AL-001): "I would like to add that I approve of your policy of not publishing Federal Law Enforcement frequencies. If these are commonly known among too many scanner listeners, the Federal Agencies will do one of three things: Change frequencies, use scramblers, or cut down on the radio traffic and use landlines as much as possible. I myself am afraid they will eventually go to scramblers. I have recorded every Federal frequency in Birmingham and it has taken me several years of long hours at the controls of scanners and tunable monitors to do it. Keep up the good work."

(Editor's Note: Your concerns about Federal frequency dissemination leading to more difficult listening for us also applies to ordinary police. It's already starting to happen. There is another concern regarding Federal frequencies and that is that not all monitor listeners are "good guys" - most are, but not all. I believe we would be doing a disservice to certain Federal agencies if we were to publish their frequencies, radio system information, etc. They have a hard enough time as it is but I'm sure not all feel as I do.)

BOB (CA-YO-001) has personalized license plates that read "RCMA". Do any other members have monitor radio related personalized license plates?

RCMA members can organize and hold meetings in any geographic area where there is sufficient interest and a sufficient number of members. The RCMA Anaheim meetings are organized and conducted by the club officers but obviously the club officers cannot organize and conduct meetings in New York, Chicago, San Francisco, etc. If meetings in these or any other areas are desired it will have to be up to the members to organize them among themselves. The CONTACT column can be used to initially contact interested members in any geographic area.

This idea holds true even here in Southern California. It is my understanding that there are now more members in Los Angeles County than Orange County, which is a good argument to relocate our meetings to Los Angeles County, OR IS IT? With increasing gas prices and considering the driving time involved it would be more practical for Los Angeles County and Orange County to have separate meetings. The club officers can organize and run the Orange County meetings and interested, motivated Los Angeles County members can organize and conduct meetings in Los Angeles County. Members who would want to attend both meetings would certainly be welcome to do so.

Should members organize meetings in other areas, all that is asked is that the Newsletter carry the meeting notices and that someone at each meeting submit a brief article describing the events of the meeting.

I have it on good authority that Electra welcomes and seriously considers ideas for new products and ideas for product modifications submitted by RCMA members. Individual members with ideas should submit them to manufacturers. It does make a difference! Sometime in the near future we should get our heads together and prepare formal recommendations to send to manufacturers.

THE Editor's Column (continued)

BEAM ANTENNAS

I was contacted by a potential manufacturer of directional beam antennas intended for use by monitor listeners. Comments from the membership to the Newsletter are strongly encouraged since a favorable response could spur the introduction of a product that could benefit many of us. First, I'll tell you my feelings and then I would like to hear yours. Remember, one of the RCMA goals is to offer recommendations to manufacturers.

I currently have four rotatable beam antennas used solely for monitoring. I searched far and wide before I found any for "our" frequencies that didn't cost a fortune, "fortune" meaning $200 or more each. For high band, I started out with a modified Cushcraft A-147-11 yagi retuned to 155 MHz (conversion information given in a back issue of the Newsletter or available from this editor for an SASE). It was very satisfactory over about a 6 MHz bandwidth. I later went to two wideband KLM log-periodic/yagi hybrid beams, one for the low end and one for the high end of the high-band. I would have much preferred a good single antenna covering 144-173 MHz. I also have a KLM 108-152-12, a 12 element log-periodic beam which covers the entire range from 108-150 MHz and is used primarily for VHF aircraft. My last one is a KLM 420-470-18 beam which covers continuously from 420 to 470 MHz. I would like to have a 406-420 beam (A/S makes one, I just haven't gotten around to getting one) and a wideband 225-400 MHz beam for the UHF aircraft band (source unknown).

I have quite a monstrosity (to me it's beautiful) perched atop a tower. The cost --- well --- not cheap. The coax alone running from these four antennas cost $70 and yet more for my Bird coax switch. For me the ideal beam would cover 118 to 512 MHz continuously, be mechanically strong and reliable, have sufficient gain (8db minimum, dipole reference) over the whole range (TV & FM 88-108 wouldn't matter), have 50 ohm impedance or come with convenient and efficient impedance matching device, have a good front to back ratio and at a cost in the $100-$200 range (not including rotator, coax, and supporting structure). Including the 30-50 MHz band would make such an antenna prohibitively large to be at all effective. Using such an ideal antenna would eliminate 3 coax runs and frequent antenna switching. I sure would go for one. Is this ideal beam antenna possible? Could it be in the hobbyist price range?

Not all listeners are interested in VHF aircraft so having the bottom end of its frequency coverage be 144 instead of 118 would clearly reduce the size (lower frequencies require larger antennas) and cost.

For many listeners a good wideband 144-174 antenna would be useful. Another for 406-512 would be useful. The number of 225-400 MHz listeners is increasing so this would be desired by some. Maybe a 225-512 MHz antenna would be the answer.

PLEASE send in your comments on what you would want in a scanner beam and in fact if you would even want one in the first place. Also, what would you be willing to pay? TV antennas are wideband antennas. Would a monitor antenna, perhaps made by a TV antenna manufacturer to the same construction standards as TV antennas but tailored for our frequencies be acceptable?

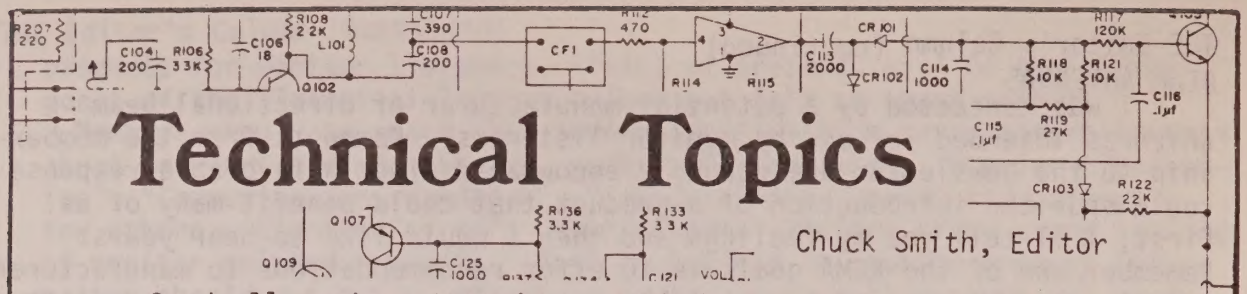
Let's hear from you! (Reply to the Riverside P.O. Box.)

"MONITORING AND THE LAW"

Bob McGovern, Editor

This column should begin with the June issue and no doubt will provide some most interesting reading.

Send all articles, references, copies of monitoring laws and questions pertaining to the legal aspects of monitoring to: RCMA, P.O. Box 1394, Sarasota, FL 33578.



Technical Topics

Chuck Smith, Editor

Send all equipment reviews, technical articles, technical tips and questions on such subjects as receivers, antennas, preamps, accessory equipment, repeaters, links, tones, scramblers, non-voice data transmissions or even computer applications for monitoring to: Chuck Smith, 4901 Heil Ave. #3C, Huntington Beach, CA 92649.

Chuck will commence with this new column in the June issue.

The following equipment review bypassed Chuck this month due to its time value.

BEARCAT 220 REVIEW

by Robert Grove, Brasstown, N.C.

I was recently privileged to a tour of the Electra Bearcat facility in Cumberland, Indiana. The modern factory is fully equipped with the latest in automated design and analysis test equipment. I was given the rare opportunity to evaluate for myself four new products on the engineer's test bench: BC211, BC220, Thin-Scan pocket scanner, and the 4-6 portable scanner. I was very impressed with the published specifications and the test bench results. All of these units meet or exceed spec.

The BC220 is unique inasmuch as its coverage includes the 118-136 MHz AM/VHF aircraft band as well as the normal three FM land-mobile bands. As can now be expected with all programmable scanners, the unit has a dual 12VDC/120VAC power supply. It is in the same housing as its predecessor, the BC250 (and its predecessor, the BC210). IF selectivity is sharp: 55 dB down at ±25 kHz. It sports 20 programmable channels in two banks of ten each. Either bank may be selectively locked in or out. Individual channels within these banks may also be locked in or out, and individually delayed as well. A priority feature is included on channel 1. As with all Bearcat programmables, low-band is stated as 32-50 MHz. In fact, almost all units will scan 30-32 MHz as well. An early microprocessor design glitch was responsible for the limited low-band specs on some select units. If you have the opportunity, check the 30-32 MHz before you buy to make sure yours is one of the majority which will scan that area fine without locking on spurious signals.

Sensitivity is good: point four microvolts on VHF, and point eight microvolts on UHF. The aircraft band sensitivity is a disappointing one microvolt. If you live near an airport, this should prove no particular disadvantage. However, the Regency Digital Flight Scan is better in this respect; the Regency also has a wider band coverage....108-136 MHz. Of course, the 108-118 range is exclusively VOR beacon, and of little listening interest.

The BC220 would be a good unit to use with NewTronics/Hustler's DCX discone. That antenna is capable of a 40-700 MHz sweep continuously. Thus, it includes the aircraft band whereas most competitive antennas don't.

Unquestionably, the greatest single improvement in the BC220 over all competitive units on the market is the virtual absence of spurious signals.

Birdies are no longer a problem. This refreshing advantage is an outstanding technological achievement, with no sacrifice in sensitivity.

Scanning and searching rates are a little slower than on previous models. Although a speed key is included, who needs a slower rate?!

A clever innovation is the inclusion of a pre-programmed marine band (156 and 161 MHz) and aircraft band (118-136) search feature. Merely press the proper key, and search of either of these bands is automatic. As requested on earlier models (but not included), a hold key will provide the user with the ability to stop search at any time; pressing "search" will resume the function.

One disadvantage that I didn't like..."Delay is much too short: only one second! That's almost as short as other scanners without a delay feature!" When a signal is intercepted, there is barely enough time to glance at the display and mentally record its readout.

Audio passband is excellent--voice tapered. Random selection of channels is also possible without being required to manually step through the sequence. Search limit programming is exceptionally easy. The display itself is larger and brighter; this should be pleasing to mobile users.

Those listeners who are looking for a good receiving mainframe to use with external converters will find the BC220 highly satisfactory. Now, an external 220-400 MHz UHF military aircraft band converter can feed into the programmable BC220 AM band with excellent results. The usual FM functions will work on other FM frequency ranges of interest (406-420, 806-866 MHz, etc.).

All in all, I like the BC220. However, if you don't have need for the aircraft band, wait until you see the BC211!

The following article has been reviewed by our "Technical Topics" Editor and it received a stamp of approval. It is being used at this time since there have been recent inquiries and confusion about images. Also, there may not be this much space available again for such a lengthy article.

WHAT ARE IMAGES? by Iden Rogers (CA-RI-001)

Simply stated, images are radio signals that show up on a receiver in the wrong place and where they show up can be predicted. In many instances, due to the internal workings of a receiver, not only is the desired frequency received but sometimes signals that are separated in frequency from the desired frequency by an exact amount.

Many listeners recognize images and have learned the arithmetical calculations necessary to work with them but still do not really know how they are created. Others may only have heard the term. In any case, the following should shed some light on the subject. This explanation will contain simply the fundamentals of receiver operation and without details and variations but this in no way will affect the validity of the explanation of images and how they occur. In some cases I will be a little redundant, hitting the same points several times and from slightly different angles. This is done in an attempt to make each point clear to the person who may not have an electronic background.

To understand images it is first necessary to understand the basics of how a typical radio receiver processes a radio signal as it passes through the various circuits or stages. The antenna is a starting point. It collects radio signals in a comparatively nonselective manner. That is, the signals that are collected span a wide range of frequencies. The signals from the antenna are then delivered to the R.F. AMPLIFIER (radio frequency

amplifier), see block diagram. The r.f. amplifier serves two functions: 1) it amplifies, or increases in strength the signals coming from the antenna which all are quite weak, and 2) it tends to select the desired frequency and reject the ones above and below it in frequency. The more SELECTIVE an r.f. amplifier the greater is its ability to select the desired frequency and reject the undesired frequencies. At the output of the r.f. amplifier the signal is not yet sufficiently strong and still requires further amplification. Also, the desired signal has not yet sufficiently been singled out from those on either side of it. Running the output of the r.f. amplifier into the input of yet another r.f. amplifier would tend to accomplish these two goals (more amplification and more selectivity) but not well enough. If the receiver is a VHF high band receiver, for example, the r.f. amplifier will operate in the 150-173 MHz range because the actual signals are in that range. In fact, that is why they are called r.f. amplifiers -- they amplify the frequencies of the actual radio signal. Amplifiers that operate at these frequencies have a limited ability to select a desired frequency while rejecting others but amplifiers that operate at a significantly lower frequency do have the ability to provide the required selectivity. So, there is a problem -- the incoming signals are in the 150-173 MHz range and too high for amplifiers to provide sufficient selectivity. The solution is to convert the 150-173 MHz range to a lower frequency and amplify it at that lower frequency. The lower frequency amplifiers can provide the required selectivity and the remainder of the required amplification.

To convert a frequency in the 150-173 MHz range to a much lower frequency the output of the r.f. amplifier is fed into a MIXER stage. It is called a mixer because not only is the desired signal fed into the mixer but yet another signal, one that is generated in the radio by the OSCILLATOR. See block diagram. (An oscillator, in this case, is really a minature radio transmitter that produces a weak radio signal.) The desired signal from the r.f. amplifier that came from the antenna and the signal from the oscillator (generated in the receiver) are "mixed" in the mixer and, amazingly, what comes out of the mixer is a new radio signal that has a frequency equal to the difference in the frequency between the desired receive frequency and the oscillator frequency. Let's use actual numbers and say our desired signal is the Riverside County Sheriff on a frequency of 158.85 MHz and the oscillator frequency is 148.15 MHz. When the two are mixed in the mixer out comes the Riverside Sheriff but now on a frequency of 10.7 MHz (158.85 - 148.15 = 10.7).

The frequency of 10.7 MHz is run from the output of the mixer to the input of the INTERMEDIATE FREQUENCY AMPLIFIER (or usually abbreviated as i.f. amplifier) which is fixed tuned (doesn't change) exactly to 10.7 MHz and is very selective. It lets through signals only on 10.7 and rejects all others. The i.f. amplifier is the part of the receiver that determines the receiver's selectivity. The i.f. amplifier also amplifies the signal significantly. (The combination of the amplification of the r.f. amplifier plus the amplification of the i.f. amplifier determines the receiver's SENSITIVITY. Basically, the more amplification, the greater the receiver's sensitivity or ability to pick up weak stations, but receiver generated noise does put a practical limit on this.)

After the desired signal passes through the i.f. amplifier it goes to the DETECTOR which separates the audio information contained on the radio signal from the radio signal. The output of the detector consists only of a weak audio signal (voice, tones, or whatever) and then goes to the AUDIO AMPLIFIER in order to build up its strength sufficiently to "drive" a loudspeaker and be heard.

The foregoing covers the basics of receiver operation and so far no mention of images. Before we get into them it is necessary to explore further and understand the relationship between the desired receive frequencies, oscillator frequencies and the intermediate frequency.

The term "i.f. frequency" is very common and it really means intermediate frequency, although i.f. frequency when spelled out would be "intermediate frequency frequency". Many scanners have an i.f. frequency of 10.7 MHz, that is, the i.f. amplifier is fixed tuned to 10.7 MHz. Not all scanners use 10.7 for the intermediate frequency. Others in use are 10.5, 10.8, 10.85 and, no doubt, others. But 10.7 is very common so it will be used here. When calculating image frequencies the i.f. frequency must be known. It is usually, but not always, shown in the owner's manual.

If the Riverside Sheriff, for example, is to be received on its frequency of 158.85 MHz the oscillator must generate a signal exactly on 148.15 MHz in order to produce a difference frequency of exactly 10.7 MHz. If the oscillator were not exactly on 148.15 MHz it would produce a difference frequency of other than 10.7 MHz which would be rejected by the i.f. amplifier. Therefore, it should be seen that the oscillator determines the freqeuncy to be received. If you want to receive a frequency of 158.895 the oscillator must put out a signal on exactly 148.195 (158.895 - 148.195 = 10.7). If you want the weather on 162.55 the oscillator must generate a signal on 151.85 (162.55 - 151.85 = 10.7). If you want to receive 153.755 the oscillator must send its signal to the mixer on 143.055 and so on. Remember, the difference in frequency between the desired incoming signal and that of the receiver's oscillator must equal the i.f. frequency of the receiver (and in this case 10.7) in order to be received.

What controls the oscillator frequency? On a tuneable radio the tuning knob turns a tuning capacitor that varies the oscillator frequency. In a crystal controlled scanner, the crystal is the frequency determining element of the oscillator and in a synthesized scanner the frequency synthesizer is a "computer controlled oscillator". In every case though regardless of the type of oscillator, the oscillator signal mixes with the desired incoming signal to produce a difference frequency equal to the i.f. frequency. In actuality, many signals on many frequencies pass through the r.f. amplifier into the mixer all at the same time. Only the one individual frequency which produces a 10.7 MHz difference frequency when mixed with the oscillator signal in the mixer will be accepted by and amplified by the i.f. amplifier and proceed through the radio and out the speaker.

Hypothetically, let's say at one particular moment that all the following frequencies have signals on them and the oscillator in the receiver is generating a signal on 148.15. Each of the incoming frequencies will mix simultaneously with the oscillator signal in the mixer and each will produce its own unique difference frequency. All of the various difference frequencies will come out of the mixer and be sent to the i.f. amplifier all at once. Only the particular difference frequency that equals the i.f. frequency (10.7 MHz in this case) will be passed by and amplified by the i.f. amplifier and become a received station.

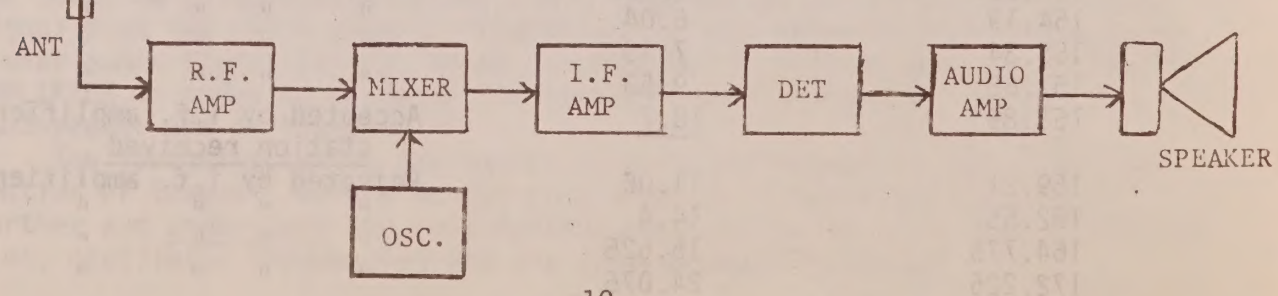
Signals on the air at a given moment	Difference frequencies produced when mixed with 148.15	Result
152.51 MHz	4.36 MHz	Rejected by i.f. amplifier
153.605	5.455	" " " "
154.19	6.04	" " " "
155.34	7.19	" " " "
157.68	9.53	" " " "
158.85	10.7	Accepted by i.f. amplifier station received
159.21	11.06	Rejected by i.f. amplifier
162.55	14.4	" " " "
164.775	16.625	" " " "
172.225	24.075	" " " "

Only the high band has been discussed but the principle is the same on the low band and the UHF bands. A three band scanner still has a single i.f. frequency and to receive a particular station the oscillator must be adjusted (by tuning on a tuneable, by inserting the right crystal on a crystal type scanner, or by programming a synthesized scanner) to a frequency that when mixed with the desired frequency will produce a difference frequency equal to the i.f. frequency.

Note the term "difference frequency", it is important. The Riverside Sheriff on 158.85 has been used in the explanation with the oscillator on 148.15 to produce a difference frequency of 10.7. If the oscillator were on 169.55 MHz instead of 148.15 MHz a difference frequency of 10.7 MHz would STILL be produced. In other words, the oscillator signal going to the mixer can be above the desired incoming signal or below the desired incoming signal and still work fine as long as the difference frequency equals the i.f. frequency. The manufacturer decides when designing a set on which side of the incoming signal they will have the oscillator operate. There are various considerations that go into making this decision. If the oscillator is designed to operate above the incoming signal by an amount equal to the i.f. frequency it is said to have "high side oscillator injection". If it is designed to operate below the incoming signal it is called "low side oscillator injection".

Remember, the mixer does not care if the oscillator is above or below the desired incoming frequency and will produce the correct difference frequency in either case. Let's say the desired listening frequency is 168.250 MHz and using a receiver with an i.f. frequency of 10.7 MHz and with low side oscillator injection, the oscillator frequency would have to be 157.55 MHz. (If the receiver were designed for high side oscillator injection the oscillator frequency would have to be 178.95 MHz. Let's stick with low side oscillator injection for now, which means an oscillator frequency of 157.55 MHz.) What would happen if an amateur radio repeater station were to come on the air on 146.85 MHz and its signal passed through or maybe around the r.f. amplifier right into the mixer? The oscillator is on 157.55 (in order to receive 168.25) and the two meter signal is on 146.85. The difference in frequency between the oscillator and the two meter signal equals the i.f. frequency of 10.7. The i.f. amplifier seeing a 10.7 MHz signal happily passes and amplifies it. In fact, you receive it. THIS IS AN IMAGE -- you are receiving a signal transmitted on 146.85 but the receiver is tuned to 168.25. The image originates on a frequency twice the i.f. frequency (2 x 10.7 = 21.4) lower than the desired frequency (168.25 - 146.85 = 21.4). It is lower rather than higher because low side oscillator injection is used (in this case).

Images always occur twice the i.f. frequency away from the frequency to which the radio is tuned. Whether a signal is above or below the oscillator frequency in an amount equal to the i.f. frequency and if it gets to the mixer, you will hear it. The desired frequency will be on one side of the oscillator frequency and the image will be found on the other side of the oscillator frequency both separated in frequency from the oscillator frequency by an amount equal to the i.f. frequency. It should therefore be clear that the desired signal and the image are always separated in frequency by an amount equal to twice the i.f. frequency.



CONTACT

A column devoted exclusively to the purpose of helping members contact other members. If you want to meet, telephone, or correspond with other members (by letter or cassette tape) in a certain geographic area or other members who have similar listening interests, this is the place to say so. Interested members will contact you directly so be sure to give your telephone number and best time to call and/or your address. Write to: RCMA, P.O. Box 4693, Riverside, CA 92514.

I am new to monitor radio listening and new to RCMA. I would enjoy meeting other members in Pennsylvania. ARMAND DI FILIPPO, 1825 South Rosewood St., Philadelphia, PA 19145.

From CAN-012: I plan to go to the ANARC Convention in Minneapolis on June 22 and 23. I would like to hear from members with active and interesting Minnesota frequencies since I plan to take along my BC-250. I also would like to know about mobile monitoring laws in Minnesota. Write to: WAYNE CZERNICKI, 1027 Inkster, SP 6 Manitoba, Canada.

(Editor's Note: Questions concerning monitoring laws will normally go to the "Monitoring and the Law" Editor, however that column will commence with the June issue so there isn't time in this case to get a response from the other column.)

I wish to communicate with other members regarding the following items:

1. Members who have experimented with directional antennas successfully.
2. I wish to communicate with members who have used FCC microfiche files.
3. Anyone using a computer to store/recall frequency/call sign info?
4. NY/NJ members interested in exploring antenna sites or exchanging photos of sites, call or write: TONY LOVING (NJ-005), 231 Kinderkamack Rd., Westwood, NJ 07675, (201) 673-8105 days, (201) 666-5577 evenings.

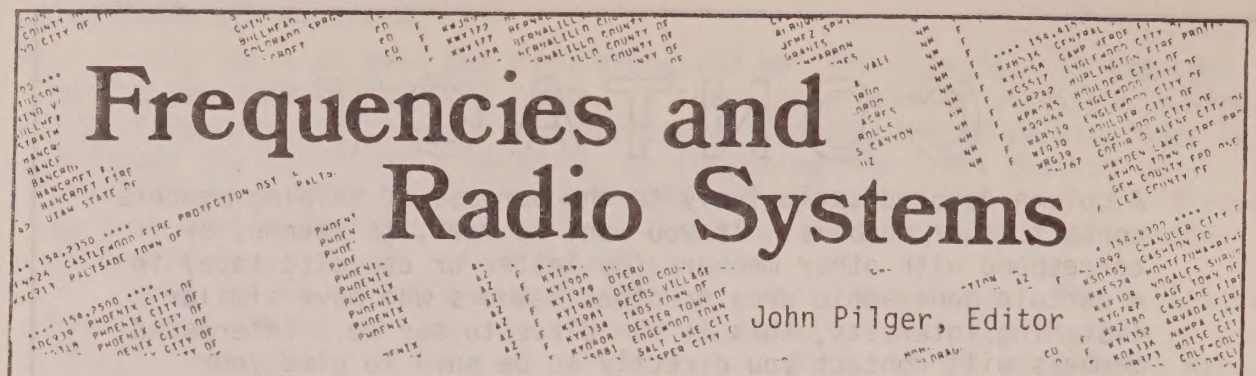
I would be happy to correspond with responsible members regarding VHF Aeronautical monitoring. I have most Caribbean and South American Aero frequencies as well as most, if not all, Cuban VHF frequencies. Will correspond by letter, tape or you may phone. (NO COLLECT CALLS PLEASE.) BILL GODBEY (FL-009), 5683 Souchak Dr., West Palm Beach, FL 33406, (305)-686-8548.

I would be most interested to hear from RCMA members in the New Jersey area and other nearby states who would be interested in forming Eastern area RCMA chapters. Write to: RICHARD (NJ-006), P.O. Box 1274, West Caldwell, NJ 07006.

(Editor's Note: RCMA members are encouraged to use this column to initially organize one time meetings, quarterly meetings or monthly meetings in various parts of the country. If something is organized, send info about it to the Newsletter.

I would like all Illinois RCMA members who would like to attend a get-together some time this summer to contact me. Contact me and I'll try to work out a mutually agreeable date. Write to: JOHN ARENDT (IL-012), 327 Boulder Hill Pass, Oswego, IL 60543.

TO ALL CANADIAN MEMBERS: I would like the opinion of Canadian members of RCMA on starting a Canada Chapter. If you would be interested, please contact me by mail or phone so we can see about forming a Chapter. Please send me your name, address, membership no. and phone no. BRIAN CORNISH, Apt. 22, Simond House, Newman St., Saint John, New Brunswick, CAN E2K1X5, (506) 693-8588 (home) or (506) 652-1000 (work).



Frequencies and Radio Systems

John Pilger, Editor

This column is for reporting two-way communications frequencies above 30 MHz EXCEPT those belonging in special interest columns such as Aircraft, Low Band Skip, Military, Federal Gov't., Satellites, etc. Members are also encouraged to submit info about radio codes, dispatch areas, unit numbering systems, overall radio system details, repeater locations, point-to-point links, newspaper and magazine clippings and questions consistent with the subject matter of the column.

John will probably begin this column with the June issue. This column will be the largest in the Newsletter and will take several months to get into full operation. Members will submit material to the Regional Editors. The Regional Editors will edit and refine this material then supply photo ready copy to the column editor who will assemble the column and in turn send it to the Newsletter Editor.

So you can see at this point that if you have submitted frequencies or radio system details which normally would have been published by now only to discover that they have not been published, the delay is resulting from the fact that this material has been sent to Regional Editors. It hopefully will work its way back into the Newsletter.

Please excuse the rather random and disorganized appearance of this column. Things will improve. I offer thanks to Bryan (CA-OR-097) for typing up frequencies this month.

NOTICE: REGIONAL FREQUENCY AND RADIO SYSTEMS EDITORS NEEDED!

Would you like to be a Regional Frequency Editor? If you 1) live in a region (as defined by the state groupings below) that is in need of a Regional Editor, 2) can offer clean typewritten copy, 3) would welcome members sending frequency and radio system information directly to you, 4) enjoy working with frequencies and radio system details and then preparing a column from the information, then perhaps you should consider being a Regional "Frequencies and Radio Systems" Editor. For details write to: RCMA, P.O. Box 4693, Riverside, CA 92514.

If you wish to report frequencies and radio systems details for states in regions where no Regional Editor has yet been found, please temporarily send your material to: John Pilger, P.O. Box 109, Ft. Meade, MD 20755.

The states represented in each Regional Editor's subheading are those found in the various "Police Call" volumes. For example, the first states listed are those contained in Volume 1.

CT MA ME NH NY RI VT

REGIONAL EDITOR NEEDED!

From TONY LOVING (NJ-005): Need relay press/remote broadcast pick up frequencies for NYC/Metro area. Members with specific technical details of NYPD/NYFD radio system, please call or write - 231 Kinderkamack Rd., Westwood, NJ 07675, (201) 673-8105 days, (201) 666-5577 evenings.

From ARTHUR WILLIAMS, JR. (NY-022): To all members of RCMA. I'm sorry but I can't provide any more frequencies due to the fact that they are too numerous and I cannot keep up with the replys. You can obtain any frequencies from the CRB Research Inc., P.O. Box 56, Commack, NY 11725, the place where I get mine.

DE MD NJ PA

REGIONAL EDITOR NEEDED!

MI OH

Larry A. Smith, Regional Editor
1223 Vinsetta Blvd., Royal Oak, MI 48067

Send Michigan and Ohio frequencies and radio system details or questions to Larry.

IA IL IN KS KY MN MO NB ND SD WI

Mike Redman, Regional Editor
P.O. Box 1177, St. Charles, MO 63301

Send frequencies and radio system details or questions relating to the above states to Mike. Mike's regional column will probably begin with the June or July issue.

The following frequency list was typed by Bryan (CA-OR-097):

NORTH ST. LOUIS COUNTY AREA, MO MIKE (MO-002)

COFD	N.ST. LOUIS CO.	DISPATCH	T3	KB6256	B/M	154.325
"	"	FIRE GROUND	T4	KBG256	B/M	154.400
"	"	PORTABLES		KYS449	M	153.830
"	"	ADMINISTRATIVE		LYY837	R	460.600
"	"	AMBULANCE	9	KX0621	B	462.950
"		AMBULANCE		KX0621	M	467.950
FD*	FERGUSON	DISP/FIRE GND.		KDZ410	B/M	154.400
"	BERKELEY	"		KDD 997	B/M	154.400
"	JENNINGS	"		KAG586	B/M	154.400
"	HAZELWOOD	"		KT0531	B/M	154.400
CD	ST. LOUIS CO.	CIVIL DEFENSE		KBH779	B/M	154.400

SOUTH-SOUTHWEST ST. LOUIS CO. MO.

COFD	S. ST. LOUIS CO.	DISP/FIRE GND	F1	KAK618	B/M	153.890
"	"	ADMINISTRATIVE	F3	KAK618	B/M	154.160
"	"	AMBULANCE		KTR726	B/M	155.235
CD	ST. LOUIS CO.	CIVIL DEFENSE		KBH779	B/M	153.890
MU	S. ST. LOUIS CO.	MUTUAL AID		KAK618	B/M	154.280
FD*	SHREWSBURY					
	WEBSTER GROVES	DISP/FIRE GND		KCK557	B/M	153.860

CENTRAL-WEST ST. LOUIS CO.

COFD	CENTRAL ST.LOUIS CO	DISP/FIRE GND	KAF919	B/M	154.370
"	"	ADMINISTRATIVE"ADMIN"	KAF919	B/M	154.220
"	"	MUTUAL AID	KAF919	B/M	154.280
FD	UNIVERSITY	DISP/FIRE GND	KJR350	B/M	154.370
"	KIRKWOOD	"	KJD219	B/M	154.370
"	MAPLEWOOD	"	KDP976	B/M	154.370
"	CLAYTON	"	KDN462	B/M	154.370
"	LADUE	"	KDP333	B/M	154.370
"	GLENDALE	"	KFD596	B/M	154.370
"	RICHMOND HEIGHTS	"	KFZ892	B/M	154.370
"	BRENTWOOD/ROCKHILL	"	KIZ203	B/M	154.370
CD	ST.LOUIS CO	CIVIL DEFENSE	KAL741	B/M	154.370
CD	"	CIVIL DEFENSE	KBH779	B/M	154.370
FD	PACIFIC	DISP/FIRE GND	KAT332	B/M	154.370
"	"	"	KAJ332	B/M	154.430
"	OLIVETTE	POLICE/FIRE	KBJ204	B/M	158.940
"	DES PERES	"	KDG832	B/M	155.100

NOTE SVC. HEADINGS WITH "COFD" INDICATE CENTRAL DISPATCH FACILITIES.

"FD*" INDICATES SELF DISPATCH CHANNEL

From RONALD (IL-009): I have received new signals from the towns of Berwyn and Cicero, Illinois, combined on the frequency of 471.2625. Berwyn and Cicero have finally been assigned a repeater frequency.

DC FL GA NC SC VA WV AL AR LA MS OK TN TX

RCMA Regional Editor
P.O. Box 270294, Tampa, FL 33688

Send frequencies and radio system details or questions relating to the above states to the above address.

From DAVID BECK (AL-001): Wanted - frequency for Brinks in Birmingham area. Anyone needing frequencies in the Birmingham area? I have a long list. 422 Laurie Dr., Birmingham, AL 35214

AZ CO ID MT NM NV UT WY

REGIONAL EDITOR NEEDED!

From MICHAEL (CA-OR-005):

Salt Lake City, UT Police are not utilizing Digital Voice Protection (DVP) yet. This has been reported in use since late 1977 or early 1978 but has not yet taken effect. There has been a lot of testing and they do have the "capability but they have too many equipment problems at this time to fully implement the DVP system".(According to one local communications expert.) (Possibly they are having the same problem with low batteries causing lost scrambler coding as some Los Angeles-based federal enforcement people have had!?)

From J. R. SEARLES (MA-): I would like to determine the ski patrol and lift operations frequencies at Snowbird, Utah's ski area. They are known to operate around 155.21. The adjacent area of Alta, Utah uses 154.515 and 154.995. Snowbird uses at least 2 channels. Please respond to J. R. Searles, 89 E. Riding Dr., Carlisle, MA 01741.

CA OR WA

REGIONAL EDITOR NEEDED!

From RON (CA-LA-060): Can any member identify the L.A.P.D. radio designation "10K---". Might it possibly be a Valley services investigative detail?

From TIM (CA-OR-072): Can anyone provide me the Cleveland National Forest unit numbering system?

From ROBERT (CA-OR-026): 1) Does anybody know what actual UHF frequencies are being used by LAPD? 2) The CHP Central LA office has added another tower with 3 dishes. Does anybody know what these are for?

From JEFF (CA-OR-012): Changes for Station 84 (Costa Mesa Fire Dept., 46.440) - The old Station 1 (Rochester & Newport) is closed. A new station was opened at Park & Center and will be called Station 3. The old Station 3 (Royal Palm & Adams) is now Station 1. All equipment remains the same, except Truck 23 is moved from the Royal Palm to Park & Center Station (still remains designated 23) and Squad 33 is now called Squad 31.

From JEFF (CA-OR-073):

SVC	CITY	USE	XTMR FREQ
PD	COSTA MESA, CA	SOUTH COAST PLAZA SECURITY	BM 464.475
PD	ANAHEIM, CA	DISNEYLAND HOTEL SECURITY	BM 162.020

Contributors name lost in the shuffle: L.A. Co. Fire is using 30.86, 30.90, 30.94 and 30.98 (all Forestry/Conservation channels).

From CHARLES (CA-SC-002):

FD	PALO ALTO CA.	DISPATCHER	Fl KXZ567	R	153.770
"	"	(INPUT)	Fl KXZ567	M	154.445
FD	CAMPBELL CA.	DISPATCHER	Fl KEC434	B/M	153.905
FD	SANTA CLARA CA.	DISPATCHER	Fl KSO914	R	153.965
FD	"	(INPUT)	Fl KSO914	M	155.025

From BRIAN (CA-OR-097): "Car and Driver" magazine states that the California Highway Patrol is looking at alternatives for the big Dodges. To quote "Car and Driver" magazine, "For general-purpose replacements, the CHP will employ a dozen 302 Ford Fairmonts and a dozen Plymouth Volare wagons equipped with 318 V-8's. But the big news is the CHP's choice for highway work: black-and-white Camaro Z28's - - - - Twelve of them."

From MICHAEL (CA-OR-005):
It appears that the California Highway Patrol (CHP) will probably be purchasing some two-watt Motorola portables for their new "extender" (Motorola PAC RT®) operation. Proposals call for one VHF channel for transmit to and receive from the car unit and one additional channel (CLEMARS?) for portable to portable use.

From MICHAEL (CA-OR-005):

Bakersfield, CA CHP is now dispatching on the Brown channel (42.500MHz Base/Car to Car - 42.820MHz Car to Base). More (eight to ten?) offices to switch later this year.

After years of "fighting it", as one official put it, it looks like the CHP dispatch centers in Santa Ana and Newhall will be moving into the Los Angeles Communications Center (LACC). This would mean that LA CHP will be dispatching all of Los Angeles and Orange Counties as well as "south-end Kern" and "west-end San Bernardino" Counties. LACC has doubled its floor space and added, among other new equipment, a second radio/microwave tower for the additional workload.

Portland, OR Police have some MDT's (E Systems Mobile Digital Terminal) in use. However, they have less than 20 and they are not used to their full capability as are those in South Bay Regional Public Communications Authority. SBRPCA, which dispatches for seven police departments (and seven FD's) in Los Angeles County, CA, has almost all police vehicles equipped with MDT's and they use them for calls, data system inquiries (such as wants, warrants,etc.), status changes, and two-way communications (between dispatchers, cars, stations, fire stations, etc.). Las Vegas, NV PD and Sacramento County, CA SO both use MCT's (Custom Electronics' Mobile Communications Terminal) in large amounts and for most activity. However, at least in Sacramento County, the "long form" must be used for transmitting messages and inquiries (such as used on the teletypes in some stations). The computer software on the MDT interfaces seems to allow very much abbreviated "formats" for this.

A lot of the plans of the Police Regional Emergency Communications system (PRECOM), covering Ontario, Upland, and Montclair Police Departments in California,were cut short by the now infamous Proposition 13. The first step, regionalizing the dispatch/complaint taking in the Ontario Police Dept. Building is being done as well as the Computer-Aided Dispatch system (CAD) which should be fully operational shortly. But the proposed switch to repeaters and to UHF "T-Band" (470MHz) along with mobile data terminals will probably have to wait. The new proposed frequencies are available but no equipment is on them yet. Data transmitters will be on the VHF channels after the switch.

CANADA

Regional Editor pending.

(Editor's Note):

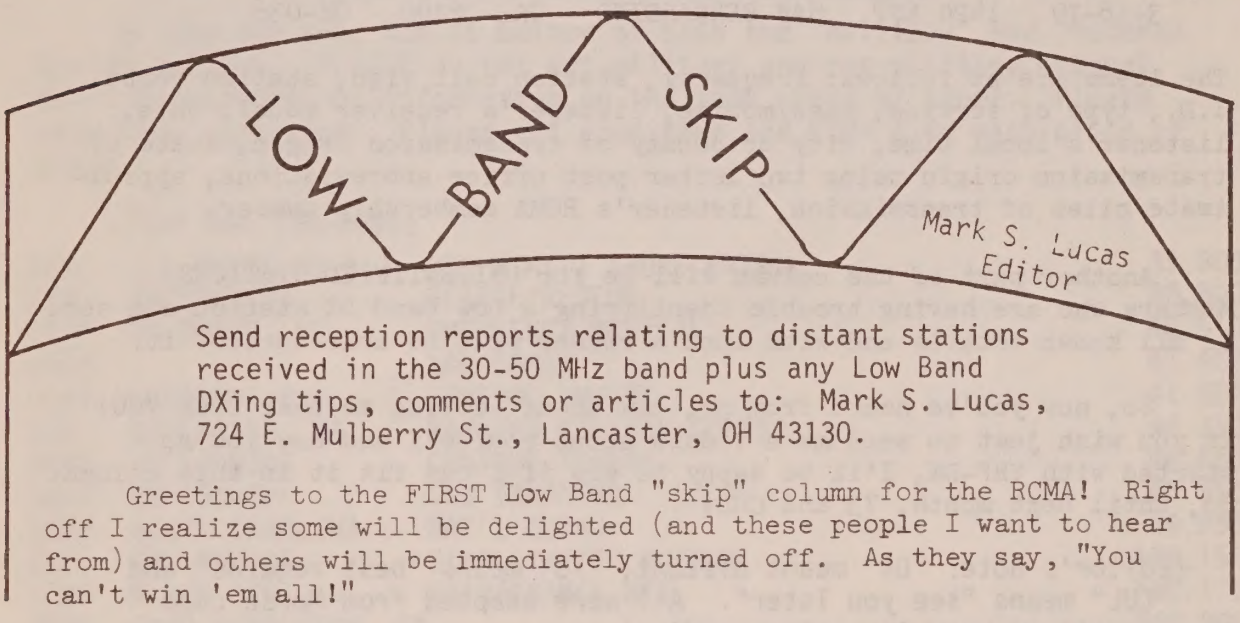
Probably many Canadian monitor listeners have not been drawn to the RCMA due to the fact that the RCMA Newsletter has not carried much relating to Canadian monitoring which in part is due to the lack of Canadian members.

Establishing an active Canadian Regional Editor will stimulate increased input from Canadian members and may very well serve to interest other monitor listeners in Canada in joining RCMA. RCMA welcomes Canadian members and will be glad to receive and publish frequencies and reports on Canadian monitoring.

CANADA (continued)

Brian Cornish (Apt. 22 Simond Hse, Newman St., St. John, N.B. E2K 1X5) is trying to coordinate Canadian monitor listeners and would probably enjoy hearing from any and all Canadian listeners. Brian may be the Canadian Regional Editor.

Canadian members are encouraged to submit information to our new "Military", "Federal Gov't", "Aircraft" and other columns. In the U.S., the government at the national level is the "Federal Government". I believe it is termed differently in Canada. Would someone be kind enough to enlighten me and excuse my ignorance.



Send reception reports relating to distant stations received in the 30-50 MHz band plus any Low Band DXing tips, comments or articles to: Mark S. Lucas, 724 E. Mulberry St., Lancaster, OH 43130.

Greetings to the FIRST Low Band "skip" column for the RCMA! Right off I realize some will be delighted (and these people I want to hear from) and others will be immediately turned off. As they say, "You can't win 'em all!"

As all of us realize (or SHOULD realize!) the sunspot count is increasing at an ever rapid rate, in fact much more than solar physicists first predicted. It has now been stated that Cycle 21 might peak as much as or even more than Cycle 19 of the late 1950s! Of course, I wasn't around in the hobby then! But then how many of us had scanners or any type of VHF band receivers in the late 50s or early 60s? At any rate, for the next few years Low Band skip will be prevalent and is on the increase.

Ever since the early days of the hobby I was fascinated with the ability to pick up stations over 500 miles from the west. With my first outside aerial I was amazed that I could receive Kansas, Oklahoma radio pagers. Such was my first exposure to VHF Low Band skip. I would be most interested in hearing about yours! That's going to be one aspect of this column.

Now to bring up my qualifications for editing such a column. First, I've been in the hobby for the last seven years, six seriously. I started out with a G.E. multiband radio. Well, I'm sure you realize how impossible it is for these sets to have good sensitivity and selectivity. So, in late 1973 I bought my first Bearcat scanner (BC-III). Eventually, I worked my way up to a BC-101, BC-210 and NOW have a BC-250, which I feel is the ultimate in scanners today. In other radio related hobbies, I have been interested in the HF bands (1.6 to 30 MHz) for the last nine years. For the last six I have been involved as radio propagation editor for the Miami Valley DX Club, an Ohio based hobby club. I feel I am qualified to tackle the task of Low Band Skip Editor. All I need to make this column work is YOUR input! After all, as with computers (I also own a Radio Shack TRS-80..16K) without any input, you cannot expect an output (this column).

LOW BAND SKIP (continued)

Now I'll mention the immediate goals and procedures for the Low Band Skip column. First, if you have heard ANY Low Band skip P L E A S E send the details to me! My deadline is set for the 5th of the month, as I intend to "put to bed" this column in the good ole sluggish mail service not later than the 15th!

A standardized reporting format should be used by members when submitting information. It should be like the following example:

42.54 KCX980 "SAN BERNARDINO" HIGHWAY PATROL BASE BC-250
3-18-79 1420 EST SAN BERNARDINO CA 2100 OH-036

The items are as follows: frequency, station call sign, station verbal I.D., type of service, base/mobile, listener's receiver model, date, listener's local time, city or county of transmission origin, state of transmission origin using two letter post office abbreviations, approximate miles of transmission, listener's RCMA membership number.

Another part of the column will be for UNIDENTIFIED STATIONS. Members who are having trouble identifying a Low Band DX station can send in all known details and with luck a reader will be able to I.D. it.

So, now you've heard from me, how about letting me hear from YOU! If you wish just to send me a tidbit about yourself and how you got started with VHF-DX, I'll be happy to see if I can fit it in this column. So, until next month, 73 and CUL!

(Editor's note: "DX" means distant, "73" means "best regards" and "CUL" means "see you later". All were adapted from Morse code operations used in amateur radio.)

FEDERAL GOV'T

Robert B. Grove, Editor

Send all non-military Federal Government frequencies and radio system details to: Robert B. Grove, Route 1-Box 156, Brasstown, NC 28902. Sensitive federal law enforcement frequencies will not be published.

From MIKE (MO-002):

USAR	DESOTO KS	SUNFLOWER AMO. PLT.	AAF445	B/M	163.5625
USAR	DESOTO KS	" (BASE TAXI)	AAF445	B/M	163.5625
"	"	" (SECURITY)		B/M	173.5125
USAR	MISSOURI RIVER	CORP. OF ENG'S(TRAFFIC)		B/M	164.2000
"	KS/MO.	" (DAM TENDERS)		B/M/R	163.4375
USPO	KANSAS CITY KS	POST OFF. VEHICLE DISP.		B/M	163.0000
"	SHAWNEE KS	"		B/M	163.0000
"	KANSAS CITY MO	"		B/M	164.7000
USWB	EASTERN KANSAS	WEATHER BUREAU &		R	166.0250
"	"	USGS, USAF &		R	166.0250
"	"	CORPS OF ENG'S		R	166.0250
FAA	KANSAS CITY MO.			B/M	166.175
BIA	LAWRENCE KS	HASKELL INDIAN COLLEGE		R	162.025
GSA	K.C. MO.	FEDERAL PROTECTION SVC		B	417.200
EBS	KANSAS CITY KS	EMERGENCY BROADCAST SVC		B	166.250
"	KANSAS CITY MO	" "		B	166.250
UVA	KANSAS CITY MO	VA HOSP. SECURITY & FIRE		R	164.175

★ MILITARY ★

Robert B. Grove, Editor

Send all ARMY, NAVY, COAST GUARD, MARINE and AIR FORCE (including military aircraft) frequencies and radio system details to: Robert B. Grove, Route 1-Box 156, Brasstown, NC 28902. Sensitive military frequencies will not be published.

As you can see, Bob is Editor of both the "Military" and "Federal Gov't" columns. PLEASE do not put military and non-military Federal Gov't frequencies or information on the same sheet of paper. Please keep them separated. Please put your name and RCMA # on each piece of paper.

From Bob (NC-006):

USN	ALL PORTS (U.S.)	USS NIMITZ SHORE PATROL		33.800
USA	NATIONWIDE	SEARCH/RESCUE		40.500
USAR	FT.BRAGG, NC	EMERGENCY MEDICAL		40.510
USAR		WAR GAMES		41.400
USAR	NATIONWIDE	CONTROL TOWERS		41.500
USA	DAHLANEGA, GA	RANGERS MEDICAL CORPS		44.750
USAF	NATIONWIDE	CONTROL TOWERS		46.650
USAF	NATIONWIDE	TAX TRAINING		46.850
USAR	NORTH CAROLINA	NAT'L GUARD		49.950
CAP	NATIONWIDE	SIMPLEX/RPTR OUTPUT		148.150
USAF	MARCH AFB, CA	MAINTENANCE NET		148.175
USMC	CAMP PENDLETON, C4			148.300
USMX	EL TORO, CA	TAXI NET		148.355
NASA	KENNEDY SPACECENTER	CRAWLER OPERATIONS		148.455
USAF	McCLELLAN AFB, CA	MAINTENANCE		148.485
USAR	MIAMI, FLA	CORPS OF ENGINEERS	"DANGER	148.635
USN	KEY WEST, FL	SHORE PATROL	HILLTOP"	149.010
USAF	HOMESTEAD AFB, FL	DISPATCHER		149.150
USAF	NATIONWIDE	BASE NET		150.225
USN	KEY WEST, FL	TELETYPE/VOICE		149.970

From Bob (KS-001):

USAF	WHITEMAN AFB MO.	SECURITY	R	149.265

MARKETPLACE

Members may advertise, free of charge, items wanted, items for sale and items for trade that are associated with the hobby of monitor radio listening above 30 MHz. No dealer ads accepted. Send to: RCMA, P.O. Box 4693, Riverside, CA 92514.

This column will be taken over by Larry Miller (OH-002) after one or two more issues.

FOR SALE

I was hit hard by IRS this year. Therefore, I must sell the following monitor equipment in order to meet other financial obligations:

MARKETPLACE (continued)

Bearcat 101 including whip antenna and programming book; Bearcat 210 including all accessories; Lafayette PF-30 (tunable 30-50 MHz plus one crystal position); Lafayette PF-60 (same as PF-30 except 150-175 MHz - both 115 VAC plus 12 VDC); Fanon Scanfare VHF-UHF handheld (UHF peaked at 476 MHz); Cushcraft Ringo 150-175 MHz; A/S ground plane 118-175 MHz; A/S gain base 450-475 MHz; A/S 3db gain 3/4" mount mobile. Absolutely no reasonable refused. Call or write today with your offer(s). TONY LOVING (NJ-005), 231 Kinderkamack Road, Westwood, NJ 07675, (201) 666-5577. First come, first served.

CRYSTALS, HC18/U type holder, 3rd overtone. Fits Sonar, Lafayette, Fanon, Hy-Gain, etc. radios. Following frequencies: 37.38, 44.62, 44.66, 44.78, 44.94, 44.98, 45.58, 45.90, 150.995, 151.115, 151.985, 154.04, 154.16, 154.43, 154.445, 154.65, 154.77, 154.89, 154.905, 155.13, 155.19, 155.205, 155.37, 155.415, 155.46, 155.535, 155.55, 155.61, 155.85, 155.985, 158.82, 159.21, 160.47, 161.04, 161.40, 453.375, 453.40, 453.55, 453.65, 453.80, 460.075, 460.100, 460.200, 460.500, 470.3125, 470.6625, 470.8625, 470.8375, 471.0875, 476.3625, 454.100 MHz. Price: $2.50 each postpaid. 5 or more: $2.00 each postpaid. Send postal money order or stamps, please. TONY LOVING (NJ-005), 231 Kinderkamack Road, Westwood, NJ 07675.

SBE Optiscan blank programming cards. 4 for $10.00. Send stamps or postal money order please. TONY LOVING (NJ-005), 231 Kinderkamack Road, Westwood, NJ 07675.

Heathkit 10-4510 oscilloscope (dual trace 15 MHZ). This includes a calibrator and all documentation. Asking price - $400. This is less than one half original price. Contact JOHN LUNDGREN, (CA-OR021) 1904 E. Wilson, Apt., Orange, Cal. 92667.

Bearcat 210, like new, in original box - $200; Fanon Courier VHF HIL handheld, excellent condition, rarely used, with the following crystals: 46.14, 46.26, 46.32, and 151.325 - $80; Antennas - Antenna Specialists, MON31 - $15, MON51 and MONR60 - $10 each. RICHARD F. BUSH, (714) 528-2274.

Three (3) SBE crystal cards, 10 crystals per card, $1.50 each card. CLIFF CHERRIER (MN-002) 3344 Xenwood So., St. Louis Park, Minn. 55416.

Heath Scanner Model 1132 Lo/Hi VHF/UHF (no crystals). Good working condition, needs very little alignment on the Hi-VHF. $80 or will trade for pocket HVHF/UHF unit in good condition. ENRIQUE HERNANDEZ (FL-006), 4310 SW 97 Pl., Miami, FL 33165.

BEARCAT 4/6 PACKAGE, excellent condition - $200; includes 2-month old BC 4/6 hand-held 4band scanner; leather case; AC and charge adaptors; 4 Nicad batteries; and eleven exciting crystals - 460.025, 460.150, 460.050, 460.475, 460.425, 464.475, 46.26, 46.14, 46.32, 42.40, 151.325; Worth $276! Call JEFF (CA OR 073) days 714-535-0283.

Bearcat crystals: 153.665, 155.385, 159.03, 166.400, 460.075, 460.175, 460.475 - $1.50 each. DAVID BECK, 422 Laurie Dr., Birmingham, AL 35214.

Regency crystals: 154.400, 153.890, 154.310, 154.370, 153.950, 154.355, 153.770, 154.175, 154.160, 154.415, 154.145, 151.325, 154.385, 154.010, 154.800, 33.700, 33.760, 33.900, 46.100, 46.160, 46.280, 46.340, 46.380, 46.440, 170.55, 171.575, 453.300, 460.575, 155.565, 155.790, 173.587 - $1.75 each. J.M. WRIGHT (CA-RI-007), 236 Myrtlewood Dr., Calimesa, CA 92320.

MARKETPLACE (continued)

WANTED

Any member who would like to dispense with some 10.8 I.F. xtals (Bearcat type) they might have lying around, I am looking for the following: 154.770, 156.150, 453.100, 453.350, 453.875, 506.9125, 39.36, 39.24, 39.52, 39.48, 42.82, 159.210, 154.995, 159.030, 155.190, 154.680. Contact RON MURRAY, 18935 Sherman Way #15, Reseda, CA 91335.

Miscellany

RCMA, P.O. Box 4693,
Riverside, CA 92514

This column will include all subjects that don't seem to fit into other parts of the Newsletter.

From JACK (CA-SL-001): "After reading the October RCMA Newsletter about Federal law enforcement frequencies I was very excited to learn about the 'Top Secret Registry of U.S. Government Radio Frequencies' published by C.R.B. Research. This book covers more than 2,250 frequencies between 25 MHz up to 470 MHz. These listings include frequencies used by military services, the F.C.C., C.I.A., F.B.I., Border Patrol, N.A.S.A., Federal prisons, Secret Service, the Treasury Dept., F.A.A., U.S. Marshal, Customs Bureau, Nat. Park Service, Fish and Game, and more. Write C.R.B. Research, P.O. Box 56, Commack, N.Y. 11725, price $4.95."

From ED SIROVY (IL-004): "Gilfer Associates, Box 239, Park Ridge, NJ 07656, offers a new edition of 'Confidential Frequency List'. Another LF to UHF frequency listing. Although prior editions have not covered much VHF-UHF, the LF-HF stuff is intriguing. Gilfer also supplies active antennas that cover shortwave through 80 MHz. Write for their catalog."
(Editor's Note: The 4th Edition of "Confidential Frequency List" is authored this time by Oliver P. Farrell. Robert Grove, the former author of this publication, endorses, sight unseen, this new edition. Bob speaks highly of Farrell's abilities and attention to detail.)

From BOB GROVE (NC-006):
"Steven J. Handler, RCMA member and former publisher of numerous frequency lists, has just released his new book 'World Radio Communications Guide'. The handy publication contains some fifty pages of radio frequency identifications from VLF through UHF. Foreign and domestic military, government, ship to shore, aeronautical, and public safety frequencies are highlighted in the publication. Of particular interest to RCMA members is an extensive VHF/FM list.
The book is a round-up of Handler's single-sheet publications which he has made available for several years; some of the HF lists are dated, but still quite useful. The VHF lists have high accuracy. They appear to be better than ninety percent valid. Handler has painfully avoided disclosure of sensitive frequencies, while including many unusual and interesting listings. Did you ever wonder what frequency CIA uses for their Langley, Va. grounds security? Have a look at page 19! 'World Radio Communications Guide' is available for $5.95 from Handler Enterprises, Box 48, Deerfield, Illinois 60015."

MISCELLANY (continued)

From TONY LOVING (NJ-005): "Now with Motorola's DVP on the market, I'd bet my last dollar that the SS, FBI, DEA, Customs, FCC, IRS, etc. will be among the first federal agencies to purchase same. Governmental agencies find the funds to purchase high technology communication equipment with little regard to price, which is not in our financial ball park. The Newsletter should not publish federal law enforcement frequencies."

From IDEN (CA-RI-001): "Tentatively in the July issue of 'Popular Electronics' Bob Grove will have an article on how to convert a TV antenna into a scanner beam."

From JOHN RUCKERT (CA-LA-055): "Several new divisions of the Braille Institute Radio Club have been formed. Students now are broadcasting, as well as receiving. They have formed an important new link with the world outside of their often confined sense of freedom. This is a great feeling."

ASSOCIATION OF NORTH AMERICAN RADIO CLUBS

NEWS HIGHLIGHTS

ANARC is a federation of the most responsible, well established radio listening clubs in North America. RCMA attained Full Member status in ANARC in 1977. For a list of the ANARC Member and Associate Member clubs send a self-addressed, stamped business size envelope with your request to the address below. For an annual subscription to the monthly "ANARC Newsletter" send $3.50 to: ANARC, 557 N. Madison Ave., Pasadena, CA 91101.

ANARC 79:

Each year members from various ANARC member clubs meet at an annual convention. This year it will be held in Minneapolis on June 22-23-24. If you would like information regarding "ANARC 79" please send your request to - ANARC 79 Convention Committee, P.O. Box 14161, Minneapolis, MN 55414. In Canada write to - 1979 ANARC Convention, P.O. Box 142, Thunder Bay, Ontario, P7C 4V5. Be sure to include a business size SASE or call (612)-825-6405.

From ANARC Newsletter, March 1979

ANARC APPROACHES 15TH YEAR OF SERVICE TO DX CLUBS AND DXERS

On April 15, 1964, the Association of North American Radio Clubs (ANARC) became a reality, fulfilling a definite need for stability among radio clubs, by opening up the channels of communication.

Don Jensen, ANARC Founder and First Executive Secretary, wrote on February 10, 1964, "The time has come for the long discussed alliance of North American DX Clubs to begin to actually take shape." Many club officials and individual DXers have discussed the advantages of such a group on this continent patterned after the successful "DX Alliansen" of Swedish clubs.

And so on April 15, 1979, ANARC marks its 15th anniversary - alive and well! Yes, ANARC has survived the "ups and downs" through the intervening years. The future is bright! We are grateful to those whose foresight, and faith gave Don Jensen the impetus to organize ANARC. We salute ASWLC, CIDX, IRCA, NNRC, NRC, NASWA and WTFDA - all are active member clubs today!

SOUTHERN CALIFORNIA DXERS (SCADS) will meet June 9 from 9 AM to 5 PM at Valley View School, 5361 Sisson Dr., Huntington Beach, CA. Everybody is welcome at one of the largest DX meetings in North America. Hopefully the guest of honor will be Tom Meyer, Host of "Happy Station", Radio Nederland,

ANARC (continued)

who is scheduled to visit Southern California in early June. SCADS is informal. For information write: Don Johnson, P.O. Box E, Elsinore, CA 92330. He will mail you an area map if you include an SASE for reply. (SCADS is attended primarily by shortwave listeners and DXers and mediumwave DXers.)

"AIRCRAFT"

Wayno Guerrini, Editor

Our new "AIRCRAFT" column will begin with the June issue. Send private, commercial, firefighting and law enforcement aircraft frequencies of interest in the 108-136 MHz range and frequencies in other bands associated with airports and aircraft plus questions, articles, and tips related to aircraft monitoring to: P.O. Box 12434, Oklahoma City, OK 73157. Please send all military aircraft frequencies and info to the "MILITARY" column.

"SATELLITES"

If at all possible the RCMA Newsletter will carry a monthly "SATELLITES" column. Yes, receiving voice messages that are relayed by several satellites is possible for the hobby listener without extensive equipment. A "SATELLITE" Editor is pending.

May 1, 1979

To: The Board of Directors & the RCMA Membership
Subject: Resignation of the post of RCMA Treasurer

Dear Friends,

Because of a change in job status at my place of employment, and because of my involvement in a new field of enjoyment, Amateur Radio, I find I'm no longer able to devote as much time to the position of Treasurer of the rapidly growing Radio Communications Monitoring Association at this time.

I will be willing to continue and finish the current membership directory that I have started and to help the new treasurer become acquainted with the many functions of his/her new job.

Sincerely,

Karl Pagel
R.C.M.A. Treasurer

Members who live in or around Anaheim who would like to get together for interesting conversation while collating, stapling and folding the Newsletter after it comes back from the printer, please contact Jerry at 772-1259. Any assistance would be appreciated.

NEW MEMBERS

CA AL 004 Gary Owens, 127 Bayo Vista #101, Oakland, 94611
CA LA 177 Greg Bertram, 20336 Anza Ave, #8, Torrance, 90503
CA LA 178 James, Hacienda Heights, 91745
CA LA 179 Malcolm Wallen, 4660½ La Mirada Ave, Los Angeles, 90029
CA LA 180 D.V. Chambers, 1619 Cumberland Terrace, Glendale, 91202
CA LA 181 Dave Break, 3600 Burritt Way, Glendale, 91214
CA LA 182 Alonza Olsen, M.D., 10719 Riverside Dr, North Hollywood, 91602
CA LA 183 Jim, Long Beach, 90814
CA LA 184 Thomas Michener, 1110 Leonard Ave, Pasadena, 91107
CA OR 111 Bob Blakeley, PO Box 1497, Costa Mesa, 92626
CA OR 112 John O'Meara, 7802 Samura Place, Garden Grove, 92641
CA OR 113 Richard Habegger, 4932 Budlong Street, Anaheim, 92807
CA OR 114 Patrick Corcoran, 604½ Narcissus, Corona del Mar, 92625
CA SA 003 Larry Valterza, 1724 41st Street, Sacramento, 95819
CA SB 015 Stan, Colton, 92324
CA SB 017 Machael Guerin, PO Box 1427, Upland, 91786
CA SF 002 Richard, San Francisco, 94105
CA SO 002 Darwin Thompson, PO Box 273, Fairfield, 94533
CA SR 003 Donald, Lompoc, 93436
CT 005 Edward DuFour III, 21 Souix Road, East Hartford, 06118
GA 003 Rueben Nance, PO Box 1265, Smyrna, 30081
IA 006 John Rice, 101 Denmark Street, Burlington, 52601
IL 023 James Mitidiero, 331 East 116th Street, Chicago, 60628
IL 024 Kirk Stolt, 1038 Augusta Avenue, Elgin, 60120
MI 009 William Kronenberg, 809 N Edgeworth, Royal Oak, 48067
MO 004 Tom Davidson, 4034 Clark #3, Kansas City, 64111
NY 027 Richard Pirie, 325 Elmwood Road, Grand Island, NY 14072
NY 028 Paul, Poughkeepsie, 12601
OH 003 David Burke, 5137 Planet Ave, Toledo, 43623
OR 008 Steven Choate, 9308 E Burnside, Portland, 97216
CAN 015 Ken, New Westminister, B.C. V3L 1L8
CAN 016 R.A. MacDonald, 2063-63 Jasmine Cr, Ottawa, Ontario K1J 7W2

ADDRESS CHANGES

CA SD 016 Laine Herman, 8949 Lombard Pl #436, San Diego, 92122
CA SR 003 Now CA SB 016 Brent, Alta Loma, 91701
CO 004 Harry Blakeman, 11695 E Cedar, Aurora, 80012
MA 003 Charles Ford, 34 Rexford Road, RFD #8, Plymouth, 02360
MA 008 LCPL David Silva, H & HS Crash Rescue, MCAS Cherry Point, NC
OR 005 Ben Hicks, 524 W Harbor Street, Warrenton, 97146
NY 010 Bob Abernathy, 11 Leeds Street, South Huntington, 11746
WI 003 Robert Lazich, 433 W Scott Street, Stevens Point, 54481

DROPPED FROM MEMBERSHIP

CA LA 038 Arthur William
CA LA 088 Larry Tunforss
CA LA 089 George Zafiropoulous
CA LA 091 Fred Laurinat
CA LA 093 Pete Grenier
CA OR 025 John Lacy
CA RI 008 Brian
CA RI 009 Ron
CA TU 001 Cloren Wynn
NY 008 Denny Tzaras
TX 002 Jim Lyons

As of 5/1/79, RCMA has 638 members in 43 states and 4 foreign countries.

PUBLICATIONS

BEHIND THE DIAL: Technical and frequency data--info on assignments, equipment, etc. 73 Magazine, Peterborough, NH 03458.

BEARCAT OPERATING FREQUENCIES: Local frequency guides in Zip Code groupings. FREE from the Electra Company. Write or call Betty Bearcat for free phone frequency info and lists.

CRB COMM DIRECTORIES: Local frequency guies and regional specialty listings. CRB Research, Inc. POB 56, Commack, NY 11725. $3.00 per copy for most lists, $4.00 & $5.00 for some; send SASE for catalog.

POLICE CALL: Radio Directories--regional volumes for public safety, etc. US Radio Data, Dept. W. Lebanon, NJ 08833. $4.95 per copy -- annual (9 vols. for 48 states; add $1.00 for mail order).

POLICE CALL: Southern California Detail Edition--local system/channel details. California Radio Communications Co. POB 35102, Los Angeles, CA 90035. $5.50 per copy -- annual.

RADIO WAVEGUIDE: San Diego Edition--local system/channel details. Scanner Master Co., 4265 35th St., San Diego, CA 92104. $6.25 per copy--annual.

* SCANNER MATE: Radio Directories--regional volumes for PS, trains, taxis, etc. Scanner Mate Directores, Inc., 172 High St., Hartford, CT 06103. $4.95 per copy--annual (7 vols. for 48 states; add $1.00 for mail order).

COMMUNICATIONS MONITORING AND COMMUNICATIONS PROJECTS, by Bob Grove to be released soon from Hayden Books.

A GUIDE TO VOICE SCRAMBLERS, Stock # 003-003-01735-5, Supt. of Documents, Washington, DC 20402. Price: $1.05.

** "SIGNAL 10-11: Manual for Monitoring the Calif. Hwy. Patrol--system/channel details.

* Per ED (IL-004), as of December 21, 1978, they are not publishing any more directories.

** Currently out-of-print.

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